

PROJECT NUMBER: 1902
PROJECT TITLE: Tobacco Microbiology
PROJECT LEADER: D. J. Ayers
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PERIOD COVERED: October, 1987

I. PROJECT ART BLEND SAMPLES

- A. **Objective:** To determine the potential for bacterial and fungal growth in the ART total blend tobacco samples at various OV's during storage at 108° F and to monitor any chemical changes that may occur.
- B. **Results:** MC Primary facility samples (OV 20 - 21%) were collected and tray dried to various OV's. Samples were placed in containers and microbially and chemically analyzed after 0,4,8,12,16,24 and sometimes 48 and 72 hours of storage at 108°F. As previously reported (1), the results from all the samples held at OV levels less than 16% did not exhibit an increase in microbial counts (>10 fold increase as compared to starting counts). The chemical changes, primarily in malic acid, did not appear to correlate well with the microbial counts (2). A memo was issued with the recommendation to hold the ART blend at a target %OV of 13.5% \pm 1% (3).
- C. **Plans:** A memo with the final results from this study is in preparation.
- D. **References:**
1. Mallory, O. Project 1902 September Monthly Summary. PM Monthly Summary, Acc. No. 87-100.
 2. Turner, D. PM Notebook No. 8285.
 3. Ayers, D. Recommended %OV for Total Blend Strip (Project ART). Memo to B. Sorrels; 1987 October 8.

II. MICROBIAL ANALYSIS OF PECTINS FROM THE REDUCED DENSITY ROD PROGRAM

- A. **Objective:** To microbially analyze the 2% Bulmer and 8% Genu pectin solutions and Marlboro and lamina blends coated with and without either pectin. This analysis will cover storage at 25°C and 4°C for up to four months.
- B. **Results:** The yeast and mold counts from all blend samples held at 25° and 4°C remained in the acceptable range after 49 and 63 days of storage. Pectin samples (results previously reported (1)) were not collected after day 35. The bacterial results from the blends continued to demonstrate variability with regard to increases and decreases in bacterial numbers after 49 and 63 days of storage (2).
- C. **Plans:** This is an ongoing study.

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D. References:

1. Mallory, O. Project 1902 September Monthly Summary. PM Monthly Summary. Acc. No. 87-100.
2. Mallory, O. PM Notebook No. 8505

III. BACTERIAL IDENTIFICATION

A. Objective: To determine the best method for identifying micro-organisms isolated from various tobacco products.

B. Results: Growth curves at 37.5° and 60°C in T-Soy Broth using ATCC cultures Bacillus circulans, B. subtilus, B. licheniformis, B. megaterium, B. pumilus, B. polymyxa, and B. coagulans have been performed to demonstrate the optimum growth temperature of these bacteria (1,2).

C. Plans: These data will be used to further analyze the cultures with the Vitek (leased for 3 months), the API Rapid CH strips, and other biochemical tests.

D. References:

1. Chadick, D. PM Notebook No. 8181.
2. Lyle, J. PM Notebook No. 8308.

IV. ALTERNATE HUMECTANT PROGRAM

A. Objective: To determine the effects of storage time and temperature on RL and RCB production plant material produced as part of G-free portion of the Alternate Humectant Program.

B. Results: To date, following 4 weeks of storage, the the microbial numbers from a majority of the the sheets (tests vs. controls) showed little change when compared to the time zero numbers (1).

C. Plans: This is an ongoing study. A memo will be issued with the final 12 week storage results.

D. References:

1. Crockett, E. PM Notebook No. 8563.

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